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DISEASES OF THE NERVOUS SYSTEM

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DISEASES of the NERVOUS SYSTEM

(PUBLISHED MONTHLY)

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

EDITORIAL COMMENT

Morale in Total War

The word "morale" has such a broad meaning that it is difficult to define, but it might be thought of as that state of mind which produces a willingness to sacrifice personal gain, a stimulus to courage, and an ability to work with others for the common good of the group. This is an essential requirement since the welfare of a nation during war depends upon the morale of the people. Physicians can improve morale because they are in a position to interpret the mental attitude of the population and use their influence to shape public policy. The time will soon arrive when some final decision must be made about the way to guide the people.

There are many psychological forces acting on us, both as individuals and as groups, to determine a common course of action for an impending armed conflict. For the past two decades, and even at present, there has been no unified expression of public opinion toward other nations. This country has been predominantly nationalistic, both politically and economically, and we have taken refuge in the belief that we are a free people in a democratic country, able to prosper without contact with our neighbors. This is said to represent a condition of mind peculiar to our democratic form of government, and yet others have termed it "isolationism."

Nevertheless, the creation of imaginery political boundaries and a changing economic world has limited the opportunities of the average man. The defeat of the French illustrates this point. Their security was erected on a tangible barrier, the Maginot Line; however, the intangible aspect of existence—a good state of morale—was probably lacking. The mass of their people had lost belief in the basic tenets of Democracy and had come to believe that equality in the social structure did not exist. This defeated the essentials for good morale.

Public opinion in this country has not crystallized. Conflicting ideas about our position in the present crisis might be traced to individual frustration. The attitude of each person is the most vital factor in the attainment of a proper morale. Unless the population as a whole feels that their individual rights have been fulfilled, there will be no realization that personal liberties and self-preservation are being threatened.

Once the individual has determined on a course of action, every effort should be made to allow him to contribute in the most efficient manner. Because of individual aptitudes those not vocationally suited to be soldiers should be retained for civilian duty. Group morale will suffer if the man or woman is not fitted for the work to be done. A maladjusted person will certainly disrupt the

(Continued to page 304)

The Present Status of Electroencephalography in Clinical Diagnosis*

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Chicago, Illinois

Dr. Grinker was graduated from Rush Medical College in 1921. He was formerly Associate Professor of Neurology and head of the Division of Psychiatry at the University of Chicago. At present, he is Chairman of the Department of Neuropsychiatry at Michael Reese Hospital. He is the author of over 70 publications, including the textbook "Neurology." He is also neurological editor of Tice's "Practice of Medicine." Dr. Grinker holds office this year as President of the Chicago Neurological Society. He is a member of the American Neurological, American Psychiatric, American Neuropathological, and other local and national societies.

Dr. Serota received his medical degree from Rush Medical College in 1938, and his Ph.D. from the University of Chicago, Department of Physiology, in 1939. He was Resident Physician in the Department of Neuropsychiatry at Michael Reese Hospital from 1939 to 1941 and is, at present, a Rockefeller Fellow of the Institute of Psychoanalysis of Chicago. He has published articles in the research field on several phases of electroencephalography and on thermal and electrical studies of the hypothalamus and cortex of animals and humans.

Introduction

Clinical electroencephalography at the present time is in a stage comparable to the early phases in the development of electrocardiography. Developed for the purpose of studying action potentials of the human brain encased in an intact skull[1] it has stimulated physiological experiments in animals. Although physiologists have cautioned clinicians against its use in clinical material and prophesied great errors in premature clinical applications, the empirical urge has again forced the way. Clinicians have developed new technics of leading potentials from various portions of the brain and developed a great quantity of data correlating particular disease processes with specific types of brain waves and even discovered on human material what has not been derived from animal experiments. Although exact interpretations of the physiological significance of various portions of the brain waves have not yet been concluded, the basic principle of "equivalent to normal" has proved to be valuable. Just as the neuropathological technics devised by Nissl were conceived not to give true representations of the living cells but deviations from an "equivalent to normal" which could be correlated with special disease syndromes, so in electroencephalography deviations from the known normal curves can be correlated with various disturbances of cerebral function.

From our collected material we wish to report representative cases correlating clinical data and electroencephalographic curves (EEG) in order to indicate the present diagnostic values of the method and its limitations as well. To this end we will consider our material as furthering the following procedures:

I. Diagnosis and differential diagnosis of the epilepsies (cerebral dysrhythmias).

II. Presence and localization of cerebral disease (atrophies, infections, etc.).

III. Localization of neoplasms.

IV. Diagnosis and differential diagnosis of psychoses.

V. Quantitative and qualitative studies of emotional states.

In a normal curve several types of waves may be observed:

1. The *alpha* or 10 per second rhythm, originally described by Berger[1] and in his honor called the "Berger rhythm," appears in the subject at rest with eyes closed. It is predominantly an occipital rhythm but may be found to a lesser degree over the entire skull. It is extinguished by opening the eyes or by mental concentration. Tremendous variability exists in individuals, from those with dominant continuous 10 per second rhythm to those with almost none. The amplitude is from 10 to 75 m.v. In this category we look for abnormalities of frequency, amplitude, regularity of pattern and degree, duration of extinction upon opening the eyes, and elapsed time for reappearance upon closing them again. Disturbances of this rhythm are extremely valuable in indicating abnormalities.

2. *Beta:* Over the sensorimotor areas may be detected the beta rhythm of 25 per second frequency and 10 to 15 m.v. amplitude. It is usually hidden by the grosser alpha rhy-

* From the Department of Neuropsychiatry of the Michael Reese Hospital, Chicago.

thm. Deviations in frequency and amplitude may be sought.

3. *Gamma* waves may appear in cisternal leads[15] and over the frontoparietal area and are normally small 50 per second waves. Their significance is entirely unknown and their presence or absence has no pathological significance as yet.

4. *Hypothalamic* waves from a special lead are typically 4 per second.[16]

5. *Delta* waves are irregular coarse, large, slow, and random and are normally seen only in deepest sleep and, when found at any other time, are indicative of a pathological state.

6. A 3 per second frequency is seen under "basal conditions" only in the epilepsies and is considered pathological especially when the so-called "cusp and spike" configuration is also present.

Case Material

CASE 1. D. McA. (Michael Reese Hospital, Neuropsychiatric Service, C68640).

Egocentric character and momentary auditory hallucinations suggested schizophrenia; further details of history indicated possibility of psychic epilepsy.

Patient is a 16 year old girl who has momentary auditory hallucinations of a nondescript voice warning her of impending danger or ordering her to do something. She has frequent nightmares. Friends notice momentary grimacing movements of the face and occasional spells in which her voice changes pitch. At the onset of menses she had occasional attacks of twitching of the arms and legs. The attacks have no emotional significance to patient who is stubborn, egocentric, asocial and given to outbursts of anger. Neurological findings were negative except for increase of the left knee jerk.

E.E.G. Findings (Fig. 1, D. McA.): Leads were taken from occipital and frontal areas with the vertex as a point of reference. The resting occipital curve shows a choppy irregular pattern with numerous small spikes, 15 to 20 per second about 25 m.v. in amplitude. Hyperventilation brought on a greater amplitude in both leads and initially decreased the frequency of both, being followed by an increased height of spikes from occiput and the appearance of large 2 to 3 per second waves from the frontal lead during the period in which tetany was clinically observed. These large waves, typical "spike and cusp" formations, disappeared about 15 seconds after hyperventilation ceased.

In this case hyperventilation brought out typical "spike and cusp" epileptic waves indicating that the apparent psychotic episodes were in reality attacks of psychic epilepsy originating in the frontal lobes. Administration of dilantin markedly decreased the spells.

CASE 2. B. P. (Sarah Morris Hospital, Neuropsychiatric Service, C20792).

Idiopathic petit mal epilepsy.

This 12 year old girl has since the age of 11 months had recurrent attacks of momentary duration consisting of sudden "absences" with shuddering or jerking movements of head, neck and shoulders which lead the psychiatrist to suspect a psychogenic muscular spasm. Occasionally she fell to the ground. Attacks were related to excitement. Three siblings died with convulsions during infections. Phenobarbital and dilantin decreased the number of attacks which had been about 50 per day.

EEG Findings (Fig. 1, B. P.): Single bipolar occipito-frontal lead shows "alphas" of high amplitude 100 to 150 m.v. and 7 to 8 per second waves 50 m.v. in amplitude. Spontaneously 3 per second "spikes and cusps" appeared

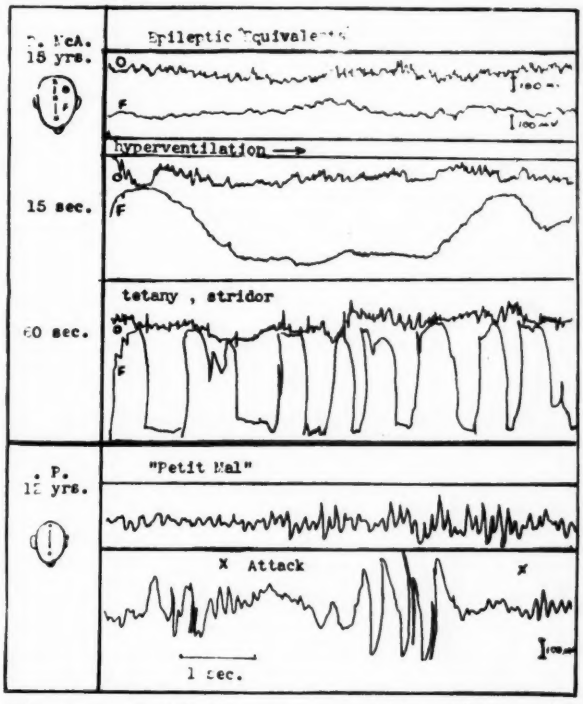

Figure 1. (D. McA.) case 1, psychic epilepsy with auditory attacks; (B. P.) case 2, idiopathic petit mal epilepsy precipitated by emotional stress.

preceding a clinical attack in which "spike-cusp formations" as large as 500 m.v. in amplitude appeared.

These findings were typical of petit mal epilepsy and leave no doubt concerning the nature of the attacks. Although the attacks were not hysterical, emotional stresses served to precipitate them.

CASE 3. M. B. (Michael Reese Hospital, Neuropsychiatric Service, C69118).

Post-traumatic depression with egocentric character and history of convulsions.

Patient is a 34 year old female who had an extremely egocentric narcissistic character and developed an apparent depression after the death of her husband in an auto accident in which the patient was bruised. She had had convulsions at the age of 3 years when sick with a fever. During her stay in a sanitarium for the "depression" she had one convulsive seizure. Neurological examination negative.

EEG Findings (Fig. 2, M. B.): Occipital and frontal leads with the vertex as point of reference showed normal alpha rhythm and an occasional burst of 16 per second "picket-fence" type of discharge. There was also one group of 4 per second waves 100 to 120 m.v. amplitude in the occipital lead. The frontal lead showed a fairly normal alpha and beta rhythm.

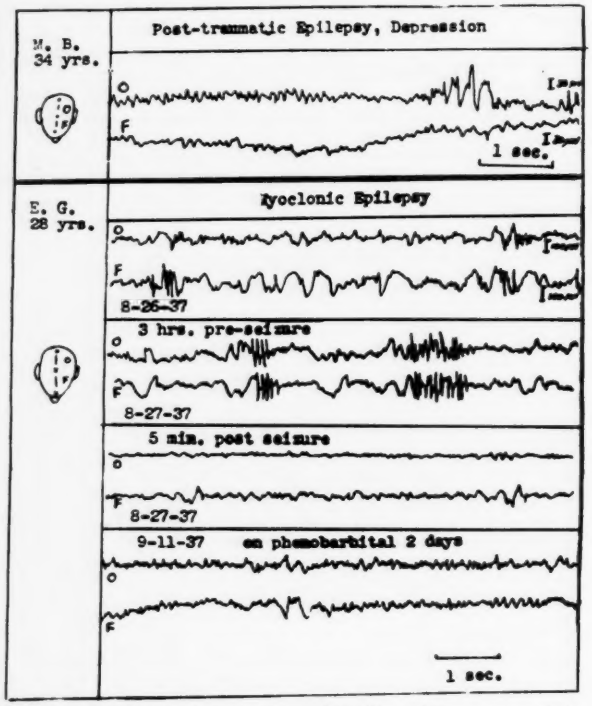

Figure 2. (M. B.) case 3, epileptic with egocentric personality and rare attacks; (E. G.) case 4, myoclonic epilepsy.

These findings led to the belief that the so-called "depression" was in reality the expression of an epileptic personality. Subsequent events proved that no real depression existed and patient resumed her normal life in a few days after appropriate psychotherapy.

CASE 4. E. G. (Michael Reese Hospital, Neuropsychiatric Service).

Myoclonic epilepsy.

Patient is a white female, aged 28, who had had attacks of nervous twitchings of face, head and extremities and spells of unconsciousness since the age of 15. She was reported by us previously as a typical case of myoclonic epilepsy.[17]

EEG Findings (Fig. 2, E. G.): The occiput shows 8 per second waves 50 to 75 m.v. and occasional spike 16 to 18 per second. The frontal pole shows large 3 per second 150 m.v. spike and cusp formations, 18 per second spikes of 150 m.v., and some random irregularity. Three hours before seizures the spikes became exaggerated in amplitude and frequency of appearance, the slower rounded waves disappear, and immediately after the attack a relatively flat type of curve appears. On phenobarbital the curves are characterized by marked beta activity and very occasional 3 per second waves over the frontal poles, the mean amplitude of the curves being one-third that of the premedication record.

This tracing shows the special type of waves of typical myoclonic epilepsy and indicates the gradual "build-up" of increasingly frequent spikes correlated with myoclonic movements ending eventually in the explosion of a generalized convulsion.

CASES 5 and 5a. C. G. and E. G. (Sarah Morris Hospital, service of Dr. I. Tumpeer, C56131 and C50485).

Pyknolepsy in sisters.

These two patients are sisters. C. G. is 12 years of age. Her spells began at the age of 6 with momentary losses of consciousness during which the eyes would roll up and conversation would cease. Occasionally there was a jerk of an arm or leg. During attacks positive Chvostek and Babinski signs appeared. Patient had one major seizure after a physician treated her with strychnine injections. Hyperventilation brings on attacks while benzedrine sulphate and carbon dioxide inhalations diminished the number of attacks.

E. G. is a 7½ year old girl who has for the last 3 years had frequent spells of momentary loss of consciousness during which the eyes simply roll up and outward and the eyelids flicker. At first these occurred 5 to 6 times daily but at present as many as 100 per day were noted. There have never been any convulsive seizures, although in some attacks patient's legs crumple up and she falls to the ground. The attacks last about 10 seconds. The blood phosphorous was 3.7 mg. per cent, calcium 11.3 mg. per cent; basal metabolism, minus 9 per cent and after 18 days on thyroid extract (½ gr. t.i.d.) dropping to minus 29 per cent with concommitant pulse rates of 72 to 50 per minute. Prostigmine exerted no effect but benzedrine sulphate reduced the number of spells markedly.

EEG Findings (Fig. 3, C. G. and E. G.): The intervals between attacks show an alpha rhythm of 8 per second and a fairly normal curve occasionally marred by dicrotic waves of 3 per second frequency and about 100 m.v. amplitude. During the attack typical 3 per second spike-cusp formations appear.

These tracings show that there is little difference between the electrical activity of the brain in pyknolepsy and minor epilepsy. The former is simply a variant of the epileptic syndrome occurring in the petit mal position of the spectrum.

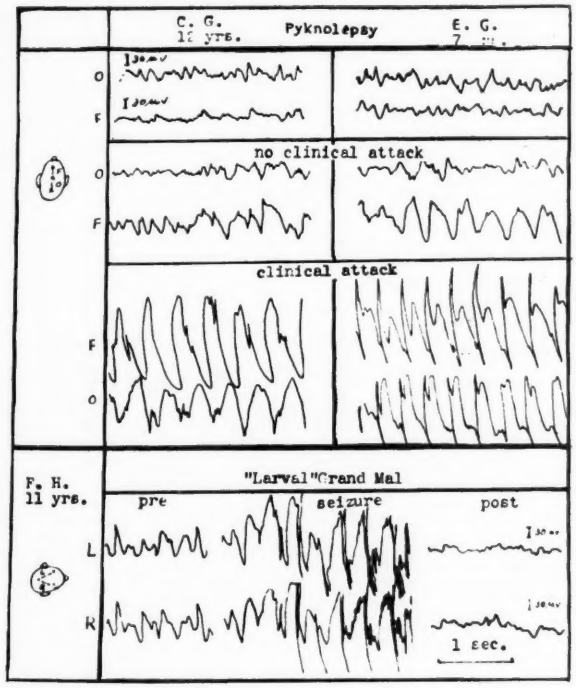

Figure 3. (C. G. and E. G.) case 5, sisters with pyknolepsy; (F. H.) case 6, characteristic dysrhythmic curve in an epileptic.

CASE 6. F. H. (Courtesy of Dr. Meyer Perlstein).

Major epileptic attacks with vasospastic phenomena.

Patient is a 10 pear old boy who has had right-sided convulsions for 5 years. Thirty minutes before an attack he becomes "mean" and irritable and 5 minutes before has an epigrastic aura. He then develops a generalized clonus, loss of consciousness, and incontinence within a period of about two minutes. These major attacks occur one to two times a week. During the seizures clonic flexor spasms develop in the upper extremities, head moves to the right and nystagmoid jerks of the eyes up and to right are simultaneously seen. There are as many as 50 minor attacks a day. During an attack spasms of the retinal arteries have been visualized. Amyl nitrite had only temporary therapeutic effect.

EEG Findings (Fig. 3, F. H.): Leads were both frontals, occiput as point of reference. Previous to seizures there are 3 to 4 per second waves of 60 m.v., and during attacks, 3 per second waves 200 m.v. in amplitude, characterized by large spikes almost double the amplitude, appearing contiguous to the slower waves. There is a relatively flat curve in the post-seizure interval.

The epileptic waves were seen to arise bilaterally and even in a minor seizure showed the predominance of spikes characteristic of a major seizure. The pre- and post-seizure tracings indicate the continuous dysrhythmia of the brain showing that the attacks themselves are only a final culmination of a constant abnormality.

CASE 7. P. E. (Michael Reese Hospital, Neuropsychiatric Service, C40980).

Bullet wound of head with major Jacksonian attacks and minor oculogyric seizures—focal cortical epilepsy.

Patient is a 40 year old man who was shot in the head in 1910. The bullet could not be removed. He then shortly developed convulsions on the left side of the body during which eyes and head deviated to left although he was hemiplegic on the left side. In 1913 attempt at removal of the bullet was unsuccessful. In 1921 the bullet was removed after which no attacks occurred and patient regained some power on the left side until a few weeks before admission in 1939. His con-

vulsions then began again with a march: the eyes turned to the left, left side of the face twitched, and left arm clonus and then right arm clonus followed. There was no loss of consciousness. Examination showed a mentally dull individual with a spastic left hemiplegia. Frequent isolated attacks of conjugate oculogyria to the left for 20 to 30 seconds occurred without loss of consciousness. Pneumoencephalography showed a dilated right anterior horn of the ventricle.

EEG Findings (Fig. 4, P. E.): Bilateral frontal leads with the occiput as reference point shows a relatively normal curve at onset of seizure with eyes deviated. The right lead shows rapid 18 to 20 per second waves 100 m.v. in amplitude. As the attack wears off the frequency is at first reduced by half and then a quarter when the eyes are again forward. The left side shows the same frequency changes although the amplitude is far less than the right at the onset and increases as the eyes come back to midline.

The tracings show an isolated attack of an oculogyric crisis occurring in the left prefrontal area probably from the frontal ocular adversive field. It is of interest in possible localization of similar attacks of oculogyric crises occurring in chronic encephalitis. Had this been the only source of abnormal discharge extirpation of contracting scar might have been attempted. However, the damaged area was far too large for successful reoperation.

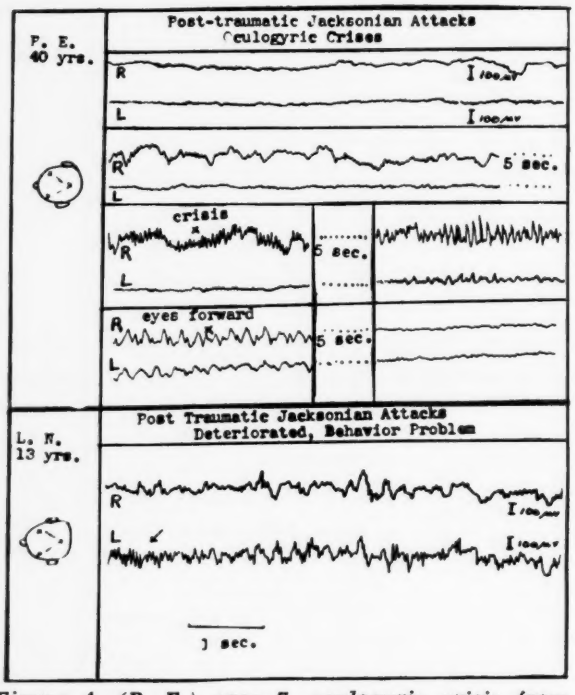

Figure 4. (P. E.) case 7, oculogyric crisis from traumatic focus of irritation in prefrontal lobe; (L. N.) case 8, post-traumatic epilepsy and deterioration.

CASE 8. L. N. (Sarah Morris Hospital, Neuropsychiatric Service, C71510).

Normally developed child suffering from major epileptic seizures and severe behavior problem after skull fracture—organic brain disease.

This 13 year old girl was well until June 1932, when she was struck on the head by a pipe, resulting in a "three-way" fracture on the right side. She was not unconscious. Two months after the injury patient began to act queerly, attempting in attacks to climb the walls. Then developed generalized major convulsions beginning in the right hand. Lately a severe behavior problem has become manifest in sudden attacks of rage in which she strikes her parents and smashes things. Laboratory tests are negative. Pneumoencephalogram reveals frontal atrophy and dilatation of the left lateral ventricle.

EEG Findings (Fig. 4, L. N.): The right frontal lead shows great irregularity, 16 per second waves occasionally being found. The left frontal shows a "picket-fence" type of 20 per second waves noted during crises in case 7 (fig. 4. P. E.).

The tracings show evidence of diffuse organic brain damage to both sides of the brain but the epileptic focus responsible for the attacks was the result of a contrecoup injury. The extent of the lesion precluded operative interference.

CASE 9. F. H. (Sarah Morris Hospital, Service of Dr. P. Rosenblum, C67938).

Severely neurotic child with peculiar attacks of unconsciousness associated with emotional excitement.

Patient is an 11 year old child who developed peculiar seizures three months prior to admission. She has had five attacks in all during which she became excited, incoherent, stiff and unconscious for five to ten minutes. Considerable evidence was at hand to indicate that attacks came as a result of emotional disturbances. Patient was withdrawn, shy, defensive, fearful and inhibited by severe restrictions imposed by the family two years before and marked anxiety attacks resulted.

EEG Findings (Fig. 5, F. H.): Resting curves

showed a 6 per second rhythm. On hyperventilation huge waves of 2 to 3 per second frequency were noted, especially over the frontal pole. A month later, the day after three successive attacks had occurred, tracings showed waves about 4 to 5 times the previous amplitude with many of 3 per second frequency. On hyperventilation the amplitude and regularity of the large slow waves was markedly increased. This enabled us to predict an oncoming seizure which occurred six hours later.

CASE 10. J. V. (Courtesy of Dr. Meyer Perlstein).

Right hemiplegia and Jacksonian convulsions—tuberous sclerosis.

Patient is an 11 year old boy who developed right-sided convulsions at the age of 18 months. He was hemiplegic on the right side until three years of age when he began to walk. His first major attack occurred at 6½ years and he now has two to three attacks for two to three days consecutively followed by a quiescent period of three weeks. The attack begins with a head aura followed by right arm clonus, then generalized clonus, and cyanosis. Patient has a flaccid atrophic right hemiparesis with absent deep reflexes and positive Babinski. On chin, face, neck and back are glossy umbilicated red skin eruptions of tuberous sclerosis.

EEG Findings (Fig. 5, J. V.): Curves showed marked beta activity of low amplitude and occasional 8 per second rhythm over occipital poles. Hyperventilation brings on large 2 per second spike-cusp formations over the left premotor area only.

CASE 11. L. G. (Michael Reese Hospital, Neuropsychiatric Service, C71341).

Peculiar hysteriform seizures in an emotionally unstable female—generalized tremor, ataxic gait.

This 40 year old female had fainting spells since early childhood occurring when upset or nervous. At first they appeared every five or six months but at present about once a week. One minute before a spell she gets a hollow feeling in her head and a sensation as if a rope were tied about it. A spell lasts five to ten minutes and patient is amnesic for the spell and weak all the day following. She has hurt herself in the attack. Patient has always been nervous and readily frightened, crying easily. There is a generalized tremulousness and a peculiar staggering gait which corresponds to no organic type. The entire clinical picture resembled a psychogenic disturbance. An attack was seen precipitated by emotional excitement. During the spell her face became red, the head was de-

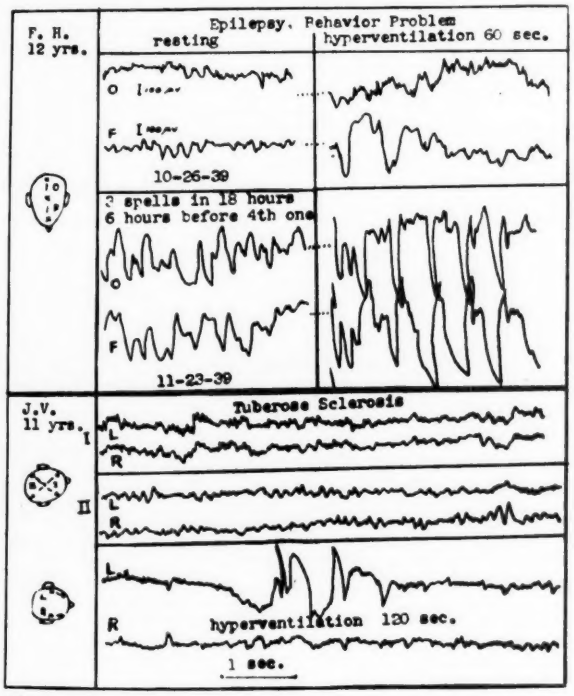

Figure 5. (F. H.) case 9, epilepsy with behavior disorder; (J. V.) case 10, tuberous sclerosis and Jacksonian epilepsy.

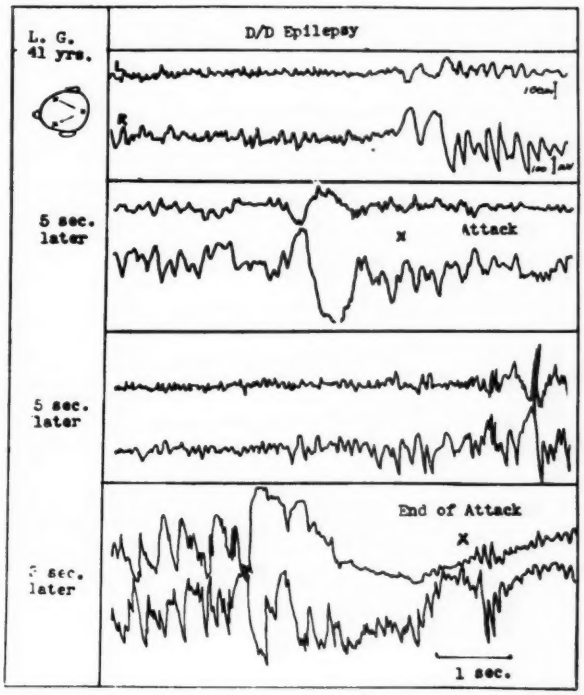

Figure 6. (L. G.) case 11, differential diagnosis between epilepsy and hysteria.

viated to the left and the neck hyperextended, reflexes were increased and the patient did not respond for several minutes, although no convulsive movements were seen.

EEG Findings (Fig. 6, L. G.): Patient had an irregular choppy curve with some 6 per second waves of 150 m.v. amplitude just prior to a seizure. The spontaneous seizure was marked by 3 per second dicrotic waves especially over the right frontal area. Toward the end of the attack spikes of 16 to 18 per second superimposed on the larger waves were noted.

The clinical differentiation between hysteria and epilepsy was only possible by the tracings demonstrated, which showed clearly the epileptic waves most prominent in the frontal leads.

CASE 12. R. G. (Sarah Morris Hospital, Service of Dr. Joseph Calvin, C64189).

Jacksonian convulsive seizures following nail puncture of cerebral cortex.

Patient was a 17 month old infant who fell on a nail one month previously. This punctured the left parieto-temporal area. Several weeks later attacks occurred in which the eyes deviated to the left, the right side of the face twitched and clonic movements of the right arm and leg occurred with a march from face to arm and to leg. The convulsions disappeared first in the leg. Horizontal nystagmus with quick component to right was also present. Flushing and hyperhydrosis occurred on the left side of the body. The left pupil was larger than the right. Pneumoencephalogram showed less air over the left subarachnoid space.

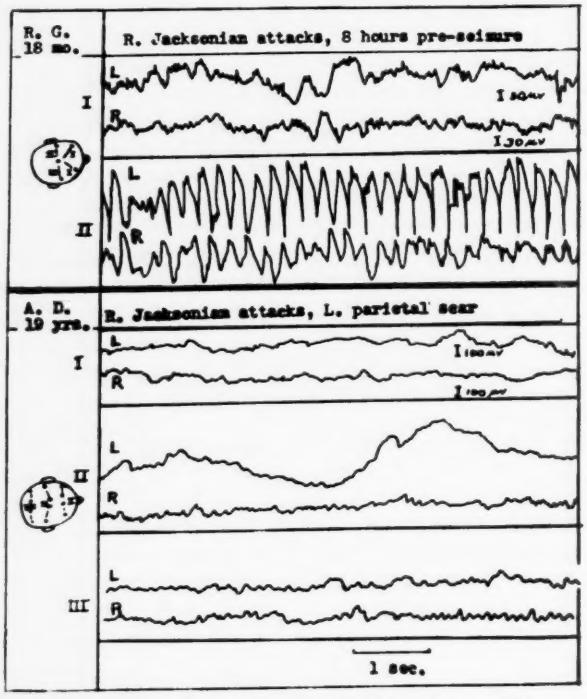

Figure 7. (R. G.) case 12, Jacksonian epilepsy; (A. D.) case 13, Jacksonian epilepsy from localized cortical scar.

EEG Findings (Fig. 7, R. G.): The frontal area showed large random irregular waves with superimposed 25 per second waves of smaller amplitude. The motor area showed large 4 to 5 per second waves 180 to 200 m.v. The waves on the left were twice the amplitude.

CASE 13. A. D. (Michael Reese Hospital, Neuropsychiatric Service, C68078).

Attacks of hemiparesis with unilateral twitchings, ataxia and sensory changes—old traumatic cortical cyst.

This was a 19 year old male who in May 1938 collapsed while standing, unable to use right arm or leg. Numbness in these extremities had been present for a month. The paresis receded in three weeks. In September 1939 he again fell following twitching and stiffness of the right arm. Between these two episodes there were muscular twitchings, tingling and numbness of the right side of the body every day. Examination, April 1938, showed right hemiparesis, decreased right abdominal, right ataxia and incoordination and astereognosis of the right hand. In November 1939 there was bilateral loss of abdominals, right hemiparesis, marked astereognosis of right hand and slight hypesthesia of that hand.

EEG Findings (Fig. 7, A. D.): Over the left parietal region were large delta waves shown in II.

Pneumoencephalogram showed a widened sulcus in the left posterior parietal area. On November 13, 1939, operation disclosed over the left posterior parietal area a firm fibrous band between dura and arachnoid. In the cortex was a yellow plaque of softened brain within which was old liquid blood. The area was excised. There had been no history of injury. The electroencephalogram thus localized to a great degree of accuracy a focal lesion of the cerebral cortex.

CASE 14. E. K. (Michael Reese Hospital, Neuropsychiatric Service, C67648).

Patient is a 50 year old deteriorated schizophrenic who is completely withdrawn, stand-

ing and rocking on his feet most of the day, mumbling to himself. He occasionally has violent outbursts of rage; otherwise, is easily handled.

EEG Findings (Fig. 8, E. K.): The tracings show an irregular choppy curve with much 25 to 40 per second activity. Such a curve as this has been found frequently in schizophrenics.[5,6]

CASE 15. E. R. (Michael Reese Hospital, Neuropsychiatric Service, C69326).

Gradually developing deterioration with silly, bizarre behavior and hallucinations as in hebephrenic schizophrenia—dilated cerebral ventricles—biopsy of cortex showed the marked degenerative changes of a chronic encephalitic process.

Patient was a 15 year old boy who as a baby showed signs of being fussy and crying a good deal. He was reasonably capable intellectually until the 7th grade of school. Domestic discord between the parents occurred ending in mother's leaving home with another man. Patient hated his stepfather and about this time developed queer and bizarre behavior with delusions of persecution and ideas that he was God. After one commitment to a state hospital he developed silly, childlike behavior with copious hallucinations. He would talk to imaginary people and was negativistic and uncooperative. Psychological tests could not differentiate between hebephrenic schizophrenia and organic brain disease.

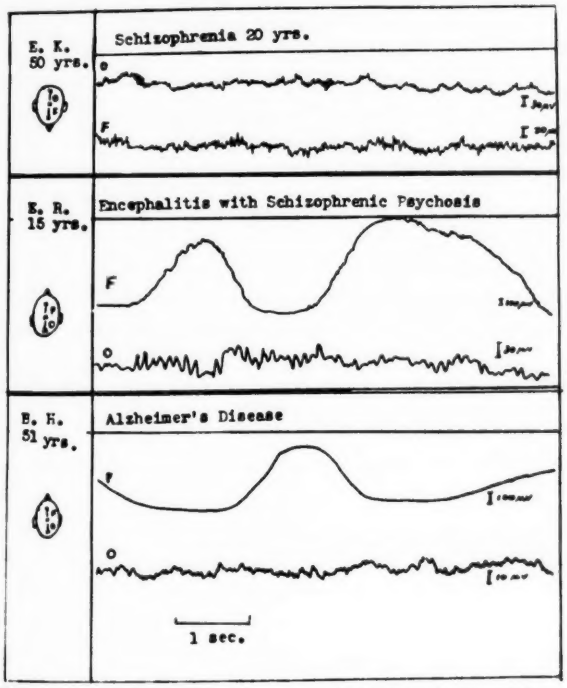

Figure 8. (E. K.) case 14, deteriorated schizophrenic; (E. R.) case 15, chronic encephalitis simulating schizophrenia; (B. H.) case 16, Alzheimer's disease.

EEG Findings (Fig. 8, E. R.): The frontal lobes show gigantic random delta waves on which are superimposed rare 10 per second waves. The occipital lobes show an increase of "delta index" and irregular 9 per second waves.

On the basis of the EEG, a pneumoencephalogram was done and showed dilatation of both ventricles, especially the left. A *cortical biopsy* from the right frontal lobe revealed that the normal architecture was profoundly disturbed and no normal cells were found. All were in a state of chronic degeneration. The leptomeninges were thickened many times with thick connective tissue and contained many more than normal blood vessels. *Microscopic diagnosis:* Degenerated cortex probably from a chronic encephalitis. Thus the EEG gave the first indication of a severe organic brain change and served to rule out schizophrenia and so avoid for the patient a useless insulin shock regime.

CASE 16. B. H. (Michael Reese Hospital, Neuropsychiatric Service, C67555).

Progressive loss of memory, coarse tremor, fatigue of speech and action, bilateral pyramidal signs, atrophy of frontal lobes—Alzheimer's disease.

This 51 year old female developed during the last five years progressive loss of vision, loss of memory, excessive fatigue, tremors and inability to speak more than a few words at a time. Arms and hands showed a coarse 5 per second tremor increased by excitement. Gait was slow and purposeless. Speech was rapidly fatigued. Deep reflexes were active and bilateral Babinski and Hoffmann responses were obtained. Laboratory examinations were negative. Pneumoencephalogram revealed marked atrophy of the frontal and temporal lobes with secondary hydrocephalus.

EEG Findings (Fig. 8, B. H.): The frontal lobe shows no alpha rhythm but slow random delta waves of large amplitude. The occipital lobe shows irregular 25 and 6 per second rhythm and some waves of intermediate frequencies.

Such extremely large delta waves are seen in other types of organic brain disease such as senility and arteriosclerotic degeneration. They indicate a fairly extensive and diffuse

atrophy.

CASE 17: H. A. (Sarah Morris Hospital, service of Dr. Jesse Gerstley, C52150). December 6, 1938.

Symptoms of hypothalamic destruction, pubertas praecox, Parinaud's syndrome, optic atrophy, obliteration of the third ventricle—pineal teratoma at autopsy.

Patient was an 11 year old boy who became nauseated and vomited frequently in the summer of 1938. He showed the symptoms of polydypsia, polyuria, somnolence and disinterest in his surroundings. Four months previously he underwent precocious puberty with deepening of his voice, enlargement of his penis and growth of pubic hair. Examination revealed generalized listlessness and weakness, pubertas praecox, exophthalmus, right convergent strabismus and intermittent polyuria. X-rays of the skull were negative. On February 28, 1939, spinal fluid pressure was 350 mm. water, positive Pandy, 27 cells per c.m. mostly lymphocytes, total protein 133 mg. per cent and Ayala index of 5.6. During the hospital stay optic atrophy of a primary type appeared and various ocular palsies including finally Parinaud's syndrome of paralysis of upward gaze and fixation of the pupils were noted. Several bouts of unexplained fever occurred.

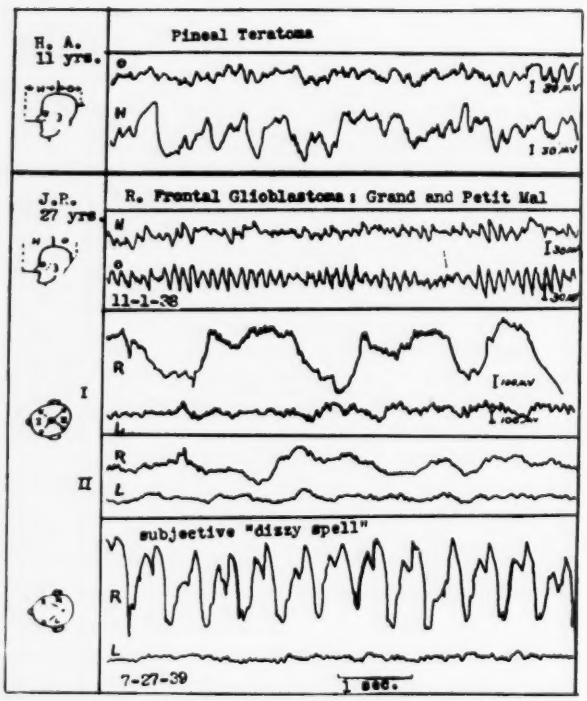

Figure 9. (H. A.) case 17, pineal teratoma; (J. R.) case 18, frontal lobe glioblastoma. H, hypothalmic lead.

EEG Findings (Fig. 9, H. A.): From the occiput there were 8 per second waves with superimposed 25 to 35 per second frequencies. From the hypothalamus large delta waves of 2 per second and slower frequency occurring random fashion of 150 m.v. amplitude and 25 to 40 per second waves were obtained.

These curves were taken before the first spinal puncture when diagnosis rested between infection and neoplasm. The curves strongly suggested the diagnosis of a midline diencephalic neoplasm. Ventriculograph showed a mass obliterating the third ventricle and pushing the lateral ventricles up and aside. Post mortem examination showed a mass of tumor replacing the diencephalon from pons to optic chiasm and pushing up through the corpus callosum. Microscopic examination revealed teratomatous tissue with spongioblasts giant cells, ciliated epithelium, cartilage, etc., apparently arising from the pineal gland. Our hypothalamic lead thus can be of valuable aid in localization of midline tumors.

CASE 18. J. R. (Michael Reese Hospital, Neuropsychiatric Service, C62700).

Generalized epilepsy preceding signs of cerebral neoplasm—left prefrontal glioblastoma.

Patient was a 27 year old male who in July 1930 developed a sudden generalized epileptic seizure followed by four similar seizures that night and at that time there were no findings, the EEG being normal. Then frequent minor attacks developed preceded by headaches which were decreased by phenobarbital. There were occasional temporal and frontal headaches for a year and then in the summer of 1939 on rehospitalization patient showed a bilateral papilledema, weak left abdominal reflex, fluttering of left side of face and slurred speech.

EEG Findings (Fig. 9, J. R.): In November when diagnosis was still idiopathic epilepsy, curves show alpha rhythm of 9 to 10 per second, 30 to 40 m.v. amplitude, and similarly normal rhythms in the hypothalamus. Eight months later on admission with choked discs he had large random delta waves 400 m.v. in amplitude with superimposed 25 to 40 per second waves over the right frontal area. There was definite increase in the "delta index" in the right occipital area. No normal alpha rhythm is found as in previous admis-

sion. During a "dizzy spell" patient showed large 2 per second regular dicrotic waves of 400 to 500 m.v. in amplitude over the right frontal pole, the left side showing regular 16 per second waves of 25 m.v. amplitude.

Ventriculography showed poor filling of the left ventricle which was deviated to the left and absent filling of the right ventricle. Operation disclosed a low right frontal premotor cystic glioblastoma. The concomitant alteration in EEG with progress of the lesion indicated that the neoplasm must reach a certain size or attain a certain proximity to the surface of the brain before it can give rise to abnormal waves.

Discussion

Although the phenomena of regular autonomous electrical discharges of groups of neurones which give the characteristic appearance to the so-called "brain waves" are still unsolved, this does not hinder us from making practical use of them.[20,21,23] From the above selected clinical material, the usefulness of the "EEG" is apparent. However, like any laboratory method, electroencephalography is only a valuable adjunct to clinical diagnosis and then only when its results are of positive nature.[7]

Diagnosis and differential diagnosis of the epilepsies is possible by means of the presence of pathological rhythms. It is now possible to predict the onset of a seizure[8,10] as in case 9, fig. 5, and to gauge the efficacy of anticonvulsant drugs.[9,12,27]

In our experience the frequently posed problem of differentiating true "epileptic" phenomena from psychically determined psychomotor disturbances such as hysteria[4] has been reduced in many cases to the search in the EEG for 2 to 4 per second waves of large amplitude (case 5 "no clinical attack"). Thus on one hand is the individual who has had several convulsions in a year, but between seizures may have little or no deviation from the normal (case 3, M. B.); and, on the other, an apparent psychoneurotic who shows a dysrhythmic curve or 3 per second rhythm concomitantly with his bizarre attacks.

When the curve is at all irregular or shows the pathological 3 per second frequency, simple hyperventilation is indicated. It has proven especially invaluable in the case of so-called "epileptic equivalents" (case 1, D. McA.), in psychomotor attacks (case 2, B. P.), end in behavior problems in children.[4,28] While little or no change in overt behavior is observed, marked arrhythmias and large amplitude "spike and cusp" formations may be brought out by this method in the EEG. In several cases such findings have lent weight to the clinical diagnosis of a convulsive state and then further questioning of relatives brought to light forgotten episodes of convulsions during diseases of infancy, or of an epileptic "skeleton in the family closet." In children it has been noted that dysrhythmias are often correlated with dysrhythmic curves in the parents' records.[26]

In the case of Jacksonian seizures the ever present question of the site of origin of the aberrant discharge is now more easily attacked.[11,22,13,36] Thus one may find a variety of pathological dysrhythmias from the "picket fence" type of 14 to 18 per second spikes of cases 7 and 8, not previously brought out in the literature, to the large slow deltas of case 13, all having anatomical correlates as determined by x-ray, pneumoencephalogram, or surgery. The possible value of hyperventilation is to be reckoned with here also. For example, in case 10 with electrode placement over several areas, hyperpnea brought out "petit mal" configurations at only one site, corresponding to clinical expectation.

In localization of neoplasms the EEG has likewise raised the hopes of the neurologist faced with the localization of a "silent area" tumor.[11,12,13,14,15,16] An example of this useful supplement to clinical judgment is found in the case of a young man (case 18) developing convulsions at the age of 27 years. Only after 8 months of the first examination were there any positive neurological signs, viz., papilledema and slight left nasolabial flattening. Comparing the EEGs of the first and second visits one is struck with the newly acquired total dysrhythmia plus marked delta activity over the right frontal pole which aided in the localization of the tumor. A large series of data has accumulated in several laboratories all in mutual agreement on the focal dysrhythmia in the form of delta waves over the area of a tumor.[2,3,34,36]

The localization of deep lying neoplasms which do not disturb the cortical rhythm is, however, still a relatively difficult problem. In the case of midline basilar lesions, how-

ever, a possible aid has appeared in the form of a nasopharyngeal type of electrode. With its use in case 17 we were able to detect an increase in the random delta activity quite unlike the usual normal curves expected from our experimental studies of the human hypothalamus.[18] Subsequent confirmatory evidence of the pathological significance of delta activity in this region was obtained in the case of a chromophobe adenoma (not here included).

Recognition of subtentorial tumors has also been studied recently.[15] The result of determinations of electrical potentials in this area makes the future application of this technique quite feasible. One source of error which has thus far suggested itself is the finding of delta waves over the right frontal pole in the case of a cerebellar medullablastoma of a child.[33] Thus it seems possible to find delta waves over an area deprived of afferent innervation from a remote source by virtue of a distant lesion. However, this objection has been more theoretical than real in our experience.

The presence and localization of cerebral disease has been less widely investigated than neoplasms or epileptic foci. In general, cortical atrophy is characterized by large swings of delta activity. Characteristic curves have been demonstrated in cases 13, 15 and 16. Thus over the area of a yellow plaque, which was also apparently an epileptogenous focus, one finds large random delta waves (case 13). Again in case 15 a routine EEG taken routinely in an apparently schizophrenic boy admitted with a view to administering shock therapy revealed large random delta waves over the frontal poles. Subsequent procedures verified the contention that severe pathological changes must be present. The finding of large random potentials over the markedly atrophic areas in the case of Alzheimer's disease (as demonstrated also in pneumoencephalogram) attests to the fact that delta activity is indicative of profound alteration in brain. Variations in localization of the alpha rhythm have been used to determine less marked atrophy.[30,31] The true significance of this slow random activity has been suggested by many authors who note its occurrence in states of impaired consciousness[27] as in anesthesia, deep narcosis, raised intracranial tension[35] and similar conditions. In such conditions as multiple sclerosis,[1,24] general paresis[1] and Parkinsonism[24] the EEG has shown only minimal deviation from the normal.

Only a small series of cases has appeared in the literature describing the electroencephalogram in the diagnosis and differential diagnosis of the psychoses.[5,6,11,19,25,29,31] While originally it was felt that the manic depressive records were characterized by an increase in the alpha index (e.g., case 14), later work tends to refute this claim. In a small series we have found no definite correlation except that depressed patients tend more toward the "dominant type" of alpha activity.

Of more immediate value, however, is the recognition of psychoses caused by cerebral lesions. The finding of a tumor or subdural hematoma or other profound change in the brain of a psychiatric patient frequently comes as a surprise at autopsy. The value of a routine electroencephalogram is therefore apparent. In point is case 15, the apparently schizophrenic boy, the true nature of whose affection could only be suggested after the EEG revealed slow random potentials over the frontal poles. This is compared with the

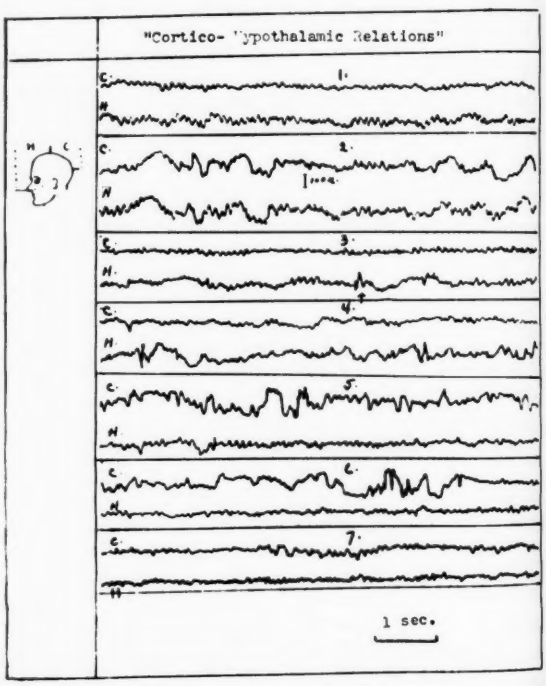

Figure 10. Unstable anxious individual: C) cortical lead, H) hypothalamic lead. (1) Resting curve, (2) After crucial emotional stimulus administered verbally, (3) Reassurance, arrow indicates aberrant cusp and spike, (4) Electrical stimulation to hypothalamus, (5) Six minutes after electrical stimulation, (7) Return to quiescent stage.

marked "beta activity" of a deteriorated schizophrenic (case 14). Rapid frequencies and choppy patterns have already been added to the EEG armamentarium in the recognition of organic disease in brains of apparently psychotic persons.[5,6] It has been suggested that the dysrhythmia of the schizophrenic is related to that of epilepsy.[11]

Attempts to correlate the EEG with emotional states have largely proven disappointing. This is probably due essentially to the fact that a resting curve is simply indicative of a static factor of a steady autonomous discharge and is as little indicative of stability or unstability as the body habitus. Nevertheless, Saul and Davis[32] have attempted to correlate EEG curves with data obtained from careful psychoanalytic studies of their patient. A low alpha index is correlated with a trend toward activity and a high index away from activity or toward passivity or inhibition.

We have attempted to use a method of studying the emotional stability by means of determining hypothalamic cortical relations[14] under a variety of conditions including crucial verbal emotional stimuli and electrical stimulation of the hypothalamus.[16] Fig. 10 indicates the sharp responses obtained in an unstable, highly neurotic individual.[18] In a narcissistic autistic schizophrenic even strong electrical stimuli applied to the hypothalamus fail to evoke a response in the cortex. However, quantitative measurements are necessary in this still highly experimental adaptation of the method.

Summary

Electroencephalography has reached the stage of development where it is of practical value in clinical diagnosis when used only as an adjunct and when its results are positive. With this method valuable aid may be obtained in the diagnosis and differential diagnosis of epilepsies; diagnosis and localization of neoplasms and degenerations; diagnosis and differential diagnosis of psychoses; and in other still experimental psychosomatic problems.

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The Use of Barbiturate Sedatives in Excited Mental Patients

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In addition to psychotherapy and other forms of treatment, the administration of sedatives is frequently necessary in order to aid in the routine management of the disturbed patient. Sedation by drugs is particularly useful in the early days of the patient's residence in the hospital since tension is frequently allayed and relaxation is fostered. The production of a state of light or deep narcosis serves to lessen the hypermotility, the destructive activity, the emotional instability, and the insomnia manifested. The way is paved for the future application of psychotherapeutic procedures.

Of the sedatives administered, the barbiturates appear to posses the most favorable action and the widest range of usefulness. Other drugs frequently employed are bromides, chloral hydrate, hyoscine, paraldehyde and opium derivatives.

Sodium Bromide given orally (grains 30 to 90) is not sufficiently effective and gives rise to toxic sequelae including annoying skin eruptions although it has a relaxing action. Chloral hydrate (grains 10 to 30) is prone to produce symptoms of toxicity and the results of its administration are not uniform or predictable. Hyoscine (grains 1/100) subcutaneously or orally frequently renders the patient more excitable, is relatively toxic in small doses, and is definitely toxic in doses sufficient to maintain sedation or narcosis. Paraldehyde (2 to 6 grams) is effective particularly in alcoholic states. It is usually given orally, but may be given intravenously if cautiously administered. Its disagreeable odor detracts from its usefulness in functional conditions. The duration of its action is relatively short. Toxic effects, depression and "grogginess" frequently result. Habituation to paraldehyde has been encountered.

Opium derivatives should be used rarely or only temporarily and are contraindicated in functional states, or where a definite diagnosis has not been established. In addition to the ever-present danger of addiction, idiosyncracy and increased excitement which may result, morphine is toxic in doses necessary to maintain sedation or narcosis. In emergencies, associated with physical conditions such as cardiac disease, it may be given

only when the symptomatology is clear-cut. Opium derivatives tend to cloud certain physical symptoms such as those associated with fractured ribs which are even more obscure in mental patients than in other individuals.

Subcutaneous or intravenous saline and glucose infusion is very helpful in toxic and debilitated states, but their administration must be preceded by barbiturates in order to attain an initial state of rest on the part of the patient. The addition of food and vitamins by means of tube feedings is also of value in these cases. Packs, continuous baths or sedative showers are also employed.

In order to be acceptable for use, a barbiturate should produce relatively few toxic sequalae. Tolerance should be slowly established and in a relatively slight degree. Tendency to habituation must be avoided. The rapid induction of sedation, the maintenance of a sufficient length and depth of narcosis, the production of effective sedation by relatively small doses, and the presence of a wide margin of safety are also necessary.

There are a number of efficient barbiturate sedatives which may be administered. The choice of any particular one depends frequently on individual preference. Two of the barbiturates that we have employed most often until recently are sodium amytal (sodium salt of isoamylethyl barbiturate) and pentobarbital sodium (sodium ethyl (1-methyl-butyl) barbiturate). Sodium amytal produces prolonged and deep narcosis, while pentobarbital sodium produces rapid effects which do not last as long.

Since October 1939, we have been using a new barbiturate, the sodium salt of 5 ethyl 5-(1-methyl 1-butenyl) barbituric acid ('Delvinal' Sodium*). In preliminary experiments on normals and in psychotic patients, it has been found that 'Delvinal' Sodium possesses certain advantages. Relatively few toxic effects or sequalae are produced. There is less tendency toward the development of tolerance. After continued use, it is at times possible to obtain a similar effect with doses smaller than that originally administered. A wide margin of safety exists. Relatively small doses are effective except in the most disturbed cases. Sedation and narcosis is comparatively rapidly established. The length and depth of narcosis compares favorably with that produced by sodium amytal. The induction of narcosis is almost as rapid as that produced by pentobarbital sodium. The dosage in moderately irritable patients is 2 to 3 grains and in more disturbed patients 6 grains is usually effective. Except in about ten per cent of the most disturbed cases, 6 to 12 grains frequently accomplished sedation and narcosis.

Sedation may be employed in both functional and organic mental illness.

Functional Mental Illness

In disorders of psychogenic origin, the manic depressive manic or mixed type obviously respond better than those with dementia praecox. While psychoneurotic states are not as commonly observed in a mental hospital, a considerable number of patients observed in a psychopathic hospital present psychoneurotic symptoms which include agitated or restless states and insomnia and these are most amenable to barbiturate sedation early in their residence.

Psychoneuroses—Sedation must be given cautiously under a supervised regime to prevent habituation which is prevalent and should always be accompanied by psychotherapy to which it must subsequently yield entirely. However, it is often necessary to resort to barbiturates as an early or temporary measure to allay the severe irritability or anxiety of the patient. These patients, who are not as agitated as the psychotic patients, respond to phenobarbital (gr. 6), or sodium amytal (gr. 3 to gr. 4), pentobarbital sodium (gr. 1-3), or 'Delvinal' Sodium (1 to 3 grains). These cases respond exceedingly well to the last mentioned barbiturate.

Manic Depressive Psychoses—This group responds almost as well as the psychoneurotics to sedation. In the milder cases of this type, sodium amytal (gr. 3 to gr. 6), pentobarbital sodium (gr. 3), or 'Delvinal' Sodium (gr. 2 to gr. 3) are effective. In the more severe cases, sodium amytal (gr. 6 to gr. 15), pentobarbital sodium (gr. 4 to gr. 12) and 'Delvinal' Sodium (gr. 4 to gr. 9) are effective. In the more extremely disturbed cases 12 to 15 grains of Delvinal or sodium amytal is frequently necessary to obtain narcosis. In a few resistive cases, as high as 30 grains of 'Delvinal' Sodium have been administered

* 'Delvinal' Sodium is Sharp and Dohme trademark name for the above mentioned barbiturate.

in divided doses without harm to the patient. Recovery is frequently enhanced by the use of barbiturates in the manic or mixed psychoses. 'Delvinal' Sodium, in particular, appears to be quite effective in the treatment of this group. Recovery is frequently hastened by the use of barbiturates in the manic depressive manic or mixed psychoses.

Dementia Praecox—While the use of sedation does not aid the rapidity of improvement in the same measure as in the manic psychoses, it is effective as a temporary measure in diminishing the state of excitement. However, continuous narcosis by means of barbiturates aids considerably in amelioration of symptoms and at times brings about a satisfactory degree of improvement. Before the advent of newer forms of pharmacotherapy, continuous narcosis with barbiturates was the most widely employed form of drug therapy. The patients must be carefully watched during this procedure. The dosage employed is roughly the same as in the manic psychoses, but often a longer period of sedation is necessary.

Organic Mental Illness

These may be divided into the acute or toxic infectious group and the more chronic progressive organic states.

In the *acute toxic cases,* barbiturate sedation is of great value except where the toxic condition is caused by a barbiturate. The excited state is ameliorated. Rest and sleep are rapidly induced. In alcoholic states, barbiturates may be used in conjunction with amphetamine sulfate. 'Delvinal' Sodium appears to be the preferable adjuvant in the management of these cases, because of the lessened toxic sequelae observed and the relatively smaller doses required.

In the more *chronic organic states,* such as paresis or arteriosclerosis, barbiturates allay the excitement and insomnia, and help in the management of the patients, but are in no sense curative. These patients react favorably to the use of 'Delvinal' Sodium. The states of restlessness associated with post-encephalitic states are temporarily abated. Epileptics frequently respond well to 'Delvinal' Sodium gr. ½ to gr. 2. In the older patients, the barbiturates must be administered with caution.

Summary

Sedation by means of barbiturates in dosages which produce few toxic effects or sequelae is the most effective adjuvant procedure in the treatment of excited patients. 'Delvinal' Sodium appears to possess certain advantages when its sedative action is compared with that of pentobarbital sodium and sodium amytal. The relative merits of the barbiturates now in use and the evaluation of the importance of barbiturate narcosis requires further investigation.

708 Irving Avenue.

The Psychoses of Pregnancy

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Trenton, New Jersey

Dr. Linn received his medical degree from Rush Medical College in 1938. At present, he is connected with the New Jersey State Hospital at Trenton, New Jersey.

There has been a steadily growing tendency in the literature of recent years to deny the existence of a discrete entity which can be designated as post-partum psychosis.[1,2] It is stated that parturition is not responsible for a special type of psychosis, but rather that it is a non-specific precipitating factor in a variety of psychoses, including the major functional psychoses. It is the intention of this paper, first of all, to present data justifying the use of the term "post-partum psychosis" as a clinical entity; secondly, to show that parturition, highly charged though this situation is with emotional and biochemical factors, represents a relatively unimportant cause of the major functional psychoses.

Sources of Material—Records in the N. J. State Hospital at Trenton and Greystone Park were examined directly. Data from other centers was obtained by mail.

Results—Figures were obtained from the Margaret Hague Maternity Center (table I) for a total of 37,422 deliveries covering a

TABLE I

Source: Margaret Hague Maternity Center, Jersey City, New Jersey.

Year	*No. of Cases*	*Deliveries*	*Percentage*
1933	9	5020	.18%
1934	8	5268	.15%
1935	18	5349	.35%
1936	15	5278	.28%
1937	9	5376	.17%
1938	13	5587	.23%
1939	9	5544	.18%

seven-year period ending in 1939. Altogether, eighty-one cases of psychosis developed in this group during the period of post-partum hospitilization, giving an average incidence of 0.22 per cent. It is this group, developing acutely during the post-partum period, to which we wish to call particular attention, since it is this group which we feel constitutes a distinct psychiatric entity.

From the New York State Department of Mental Hygiene data was obtained (table II) for a total of 51,697 female first admissions,

TABLE II

Source: New York State Dept. of Mental Hygiene.

Fiscal year	*Female first admission to New York Civil State Hospitals*	*Females in which childbirth was causation factor*	
		Number	*Per cent of total female 1st admissions*
1930	4085	65	1.6%
1931	4189	67	1.6%
1932	4553	85	1.9%
1933	4927	85	1.7%
1934	5129	68	1.3%
1935	5433	92	1.7%
1936	5538	80	1.4%
1937	5732	72	1.3%
1938	5927	63	1.1%
1939	6139	73	1.2%

covering a ten-year period ending in 1939. The number of cases in which childbirth was a causative factor averaged 1.5 per cent of the total. If we were to confine our discussion strictly to those cases having their onset in the post-partum period, then this percentage would be too high, for examination, by the writer, of many case histories reveals that childbirth is given as a cause when actually the onset of the psychosis is only secondarily related to childbirth. This point will be discussed subsequently at greater length.

In the records to which the writer had direct access, seventy-six cases were classified as psychosis due to childbirth. In analyzing these cases, the post-partum period was considered roughly to be that two-week period immediately following childbirth during

TABLE III

Age	*Number of Children*								
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
17	*								
18	*								
19	* * *	*	*						
20	* * * * *	*							
21	* * *		*						
22	* *								
23	* *	*		*					
24	*				*				
25	* * *								
26	*	*							
27	* *	* *	*						
28	* * *		*						
29	* *								
30	*	* * *							·
31	*								
32			* *			*			
33									
34	*								
35									
36		*	*		*				
37		*							
38						*			
39		*							*

which a woman is usually bedfast. The cases were divided into two groups: Group A—those having their onset acutely during the post-partum period as defined above. Group B—those having their onset outside of the post-partum period, either before or after parturition. Of the author's group of seventy-six cases, fifty-nine belonged to Group A, and seventeen cases belonged to Group B.

The first to be considered is Group A:

a) *Age of onset* (table III)—It will be seen that there is no characteristic age of onset. Most of the cases appear to occur in that age group which delivers most of the babies.

b) *Parity*—60 per cent of the cases occurred in primipara (table III). This may be related to the fact that labor in primipara is prolonged and more frequently associated with maternal morbidity. However, the higher categories are not exempt. There is one case in this series of a woman who delivered eight babies uneventfully and then developed a brief psychosis following the ninth. This ninth delivery was associated with operative intervention for the removal of an adherent placenta.

c) *Day of onset* (table IV)—71 per cent of these cases had their onset within the first week following delivery. It is interesting to note that the third post-partum day marked the onset of more cases than any other day. This fact has been observed by others, and it has been suggested that lactation, which has its onset on this day, may somehow be related to this phenomenon.

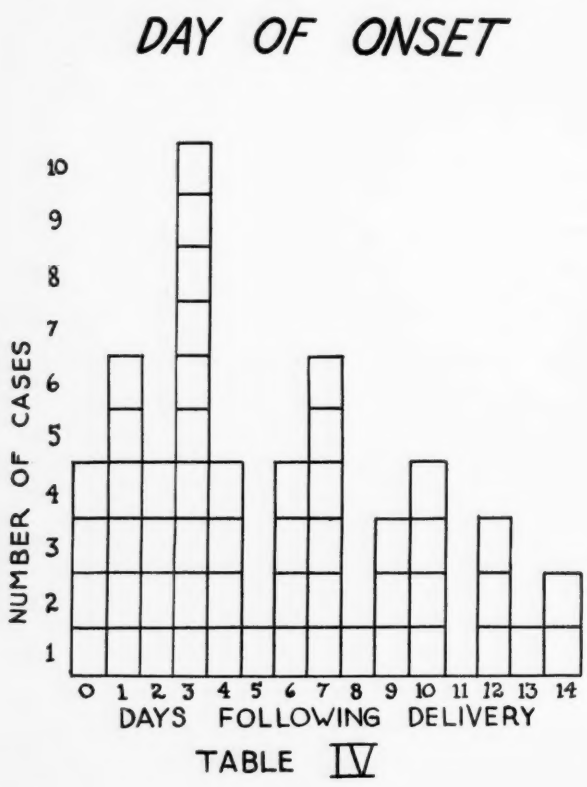

TABLE IV

d) *Symptomatology* — Most cases were marked by wild excitment, hallucinations and delusions of a frightening nature. However, retarded states were also observed, including mutism, negativism and catalepsy.

e) *Presence of previous mental illness* was unusual. The majority of these cases showed no personality disorders marked enough to be noted in the records.

f) *Course*—There occurred five deaths in Group A, three of which were related to overwhelming infection and the remaining two to vascular accidents.

Six remained in the hospital for over one year. Of these, four ultimately improved sufficiently to be discharged from the hospital records. One case improved steadily over a period of three months, until an ill-advised and poorly supervised parole supervened during which the patient drank lysol in an attempt at suicide. The long period of critical illness which resulted was followed by a chronic deteriorating psychosis. One case only ran a progressively downhill course from the time of admission.

The other fifty-two cases were able to leave the hospital with full remission within a period varying from a few weeks to ten months, with an average hospital stay of about 3 months.

g) *Subsequent mental illness* was infrequent in the fifty-two cases cited above. Two cases had relapses with subsequent pregnancies. Both of these cases were atypical in that one had neurologic signs and symptoms suggestive of organic brain disease, and the other had an obsession that her baby was dead prior to the birth of her first child. Three cases had subsequent attacks not related to pregnancy: one had an attack following acute gastro-enteritis, the other an attack following major surgery, and the third had recurrent manic attacks, the etiology of which was not ascertained. Forty-seven cases remain which have had no subsequent recurrence of mental disease over a period of one to ten years, this in spite of subsequent pregnancies, major operations, and a variety of personal difficulties.

h) *Family history*—Most of these cases had no history of mental illness in the family. The presence of a positive family history did not alter the entirely favorable prognosis as outlined above.

i) *Obstetrical history*—The writer communicated with several of the hospitals at which these women were delivered. Almost all of the women on whom data was obtained had some pathological factor operating during or following parturition, such as infection, severe anemia, toxemia (elevated blood pressure, albumen in the urine). Of two cases with histories of normal labor, one was the case previously mentioned as unique in this series in that she ran a steady downhill course to deterioration. The other recovered in three months.

j) *The use of analgesic drugs*—Occasional cases were observed by the writer in which psychosis was evident immediately following delivery and which ran a rapid course to full recovery within a few days. These cases had histories of having received sodium pentabarbital during the second stage of labor. Inasmuch as there has been a marked increase in the use of analgesic and amnesic drugs in the second stage of labor during the last four or five years, with sodium pentabarbital enjoying particular popularity,[3,4] it was thought that a rising incidence of post-partum psychosis might be demonstrated on this basis. However, no such correlation could be established. The drug deliria so commonly observed during labor in women given sodium pentabarbital are so transitory that they apparently do not contribute significantly to the number of cases which are ultimately hospitalized for post-partum psychosis.

In summarizing this discussion of Group A, it is pointed out that of fifty-nine cases having their onset acutely in the post-partum period only two are at present suffering from a chronic deteriorating psychosis. Fifty-two were able to leave the hospital in full remission. Of these, only five subsequently developed psychoses, each of which were of short duration and ended in recovery.

In contrast to the essentially homogeneous and benign category just outlined is the group having its onset outside of the post-partum period, designated as Group B, and comprising seventeen cases.

First we will consider those cases in which the onset occurred before parturition. There were nine such cases.

One developed a psychosis in her sixth month of pregnancy and this cleared up dramatically on delivery of the baby. She has apparently suffered no recurrence of psychosis.

Another patient developed pernicious vomiting and a psychosis during the first trimester. Both the vomiting and the psychosis persisted throughout the pregnancy, and the patient died shortly following delivery.

Four of these cases with onset preceeding delivery are at this time deteriorated schizophrenics.

Three others left the hospital in three to five months and suffered no recurrence of mental illness.

Nine of the cases in Group B had their onset after the post-partum period.

Four of these are deteriorated schizophrenics at this time.

Three cases were paroled within three months and had no recurrence of mental illness.

One is a patient at this time, suffering from recurrent attacks of mania.

The ninth case left the hospital in a depressed state against advice of the staff, and has not been heard from again.

The onset of illness in Group B was in some instances sudden, in some gradual. The actual time of onset varied from the beginning of pregnancy to ten months following delivery. There is no common denominator in this group except the onset of psychosis during pregnancy or within a period of about one year following parturition. It is this group which has made many observers feel that there was no psychosis of pregnancy. It is the argument of the writer that this group, which has been used to prove that there is no psychosis of pregnancy, is at best only questionably related to pregnancy. It is this group in which pregnancy, if it is a factor, may well be a non-specific precipitating complication in the life of an already inadequate individual.

An Analysis of 100 Control Cases

To further evaluate the role of childbirth in the etiology of psychosis, one hundred cases were selected from the files of the Trenton State Hospital, on the following basis:

1) The patient must have borne at least one child.

2) She must have a functional psychotic diagnosis. The selections were otherwise made at random. Of these cases, forty had more than one admission.

a) One of these was another of those curious cases having its onset during pregnancy, which cleared up dramatically upon delivery of the child. She was discharged, apparently in full remission, two weeks after the delivery. Within a few days she relapsed and was returned to the hospital. She committed suicide two weeks following this re-admission.

b) Another had two attacks of psychosis during the post-partum period, the second of which resulted in a chronic deteriorating psychosis.

c) Of ten cases in which only one of several admissions was regarded as due to childbirth, the onset in six was definitely outside of the post-partum period. Of the remaining four, one was first admitted as a schizophrenic, simple type, who improved sufficiently after two years to leave the hospital. Following her discharge she became pregnant and delivered an illegitimate child. She became violently disturbed during the post-partum period and was returned to the hospital, where she remained in continuous residence until her death from tuberculosis, two years later. The second case had seven attacks, each diagnosed as manic depressive insanity, mixed type. One of these attacks started during the the post-partum period of the first of her two deliveries. The third case had a brief psychotic episode following the delivery of her first child, then delivered four other children without developing a psychosis. Her second attack was of insidious onset, not related to pregnancy, which resulted in schizophrenia with deterioration. The fourth case developed a psychosis in the post-partum period following the birth of her only child. She recovered within five months. She had two subsequent attacks, diagnosed as manic depressive insanity, mixed type, the onsets of which were not related to pregnancy.

d) Of these forty re-admissions, the remaining twenty-eight cases represented a total of seventy-nine deliveries and over eighty psychotic attacks in which the onset of each attack was not related to pregnancy.

The remaining sixty cases in this random group of one hundred consisted of women with a single admission which resulted in permanent hospitalization for a chronic deteriorating schizophrenic reaction. Of these sixty, eleven cases were found in which childbirth was given as a cause. In none of these was the onset of the psychosis apparent in the post-partum period. The other forty-nine cases accounted for two hundred and five pregnancies, the great majority of which were full term deliveries. In none of these instances was pregnancy manifestly related to the onset of the psychosis. It was amazing to the writer to see how prolific were the patients in this group. They averaged over four pregnancies per patient. It is also interesting to note that pregnancies frequently occurred in this series during the actual psychosis without producing any remarkable change in the course of the illness.

Discussion

The goal in the classification of psychiatric diseases is a classification based on etiology. As long as the etiology of the functional psychoses remains obscure, the classification of this group must, of necessity, be unsatisfactory. Similarly, the argument for a distinct clinical entity, which is to be labeled post-partum psychosis, must be inconclusive as long as the etiology of such a psychosis is unknown. In the data presented in this paper, those cases having their onset in the two-week period following delivery appear to constitute a fairly homogeneous clinical entity as far as prognosis is concerned. It may well be asked if there is any justification other than statistical convenience which warrants a special label for this particular two-week period rather than, let us say, a three or six-week interval as the post-partum period. Without pretending to have solved the problem, the writer would like merely to recall some interesting facts from endocrine physiology. As is well known, gonadotropic hormone appears in the urine in high concentrations very early in pregnancy. It is upon this fact that the Aschheim-Zondek pregnancy test is based. Immediately following parturition the concentration of gonadotropic hormone starts to decrease, reaching very low values by the seventh day and disappearing from the urine by the tenth to the fourteenth day.[5,6] The post-partum period, as

defined in this paper, is thus seen to coincide very precisely with that period during which the concentration of gonadotropic hormone is disappearing from the urine. It might be interesting to attempt to head off a psychotic reaction starting during the post-partum period by injections of gonadotropic substance.

Conclusions

1) Data is presented arguing for the recognition of a clinical entity to be labeled post-partum psychosis, characterized by an acute onset within two weeks following childbirth and a highly favorable prognosis for complete recovery.

2) Psychoses having their onset outside of this two-week period do not constitute a homogeneous entity. In these cases pregnancy probably acts as an indirect, non-specific precipitant, if it is an etiologic factor at all.

3) Childbirth is a relatively unimportant factor in the development of the major functional psychoses.

The author wishes to express his appreciation to Dr. Joseph E. Raycroft and Dr. Emil Frankel for their assistance in preparing this paper. He wishes also to thank those various institutions which cooperated in assembling this data.

New Jersey State Hospital.

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Kinesia Paradoxa in Post-encephalitic Parkinsonism

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Dr. Wittenbrook received his medical degree from Western Reserve University in 1936. At present, he is Clinical Assistant in Medicine (Psychiatry) at Ohio State University, an Associate Member of the American Psychiatric Society, and Admitting Physician at the Columbus State Hospital.

Although the syndrome of Kinesia Paradoxa in Post-Encephalitic Parkinsonism is well known to the Neurologist, other physicians not so closely associated with diseases of the nervous system, are likely to be ignorant of its existence. We tend to think of Parkinsonism with its typical symptoms: fixed facial expression, cog-wheel rigidity, propulsion, retropulsion, akathesia, and bradykinesia. Thus the picture we retain is one of a disease which produces permanent, slow locomotion and prevents rapid or nearly normal activity.

I particularly wish to draw attention to Kinesia Paradoxa, since recent editions of many popular neurologic works do not mention it at all. A few text books (Bing and Haymaker, Wecksler, Brain) mention it briefly, but report that it is very rare. Noting that two of our typical cases demonstrated this syndrome very definitely, I examined the records on the remainder, or placed them under observation. Bed ridden cases were not included. To my surprise I found that each of our eight typical cases of Parkinsonism showed this syndrome. The bradykinesia and Kinesia Paradoxa was present on a constant dose of medication (e.g. hyoscine, stramonium, etc.).

Although mentioned only briefly in some textbooks, a very good description of the syndrome is given in two of them. The description in Bing and Haymaker is classical. "Certain patients, despite their very marked difficulties in walking, can run rapidly and jump over obstacles. Speaking is sometimes so slowed that one must at times wait many minutes for the patient's response to a question. At other times, after a short initial effort the patient is able to carry on a long conversation untiringly." To this Wecksler

adds the following: "Very rarely one observes what has been called by Jarkowski and Babinski, Kinesia Paradoxa, namely the performance under emotional stress of ontogenic and phylogenic movement ordinarily lost . . ."

The Kinesia Paradoxa took a number of forms in our patients. Quite often it consisted of an attempt to run away from the hospital. One patient has run away from the hospital at least nine times and has been found in such remote places as California and Texas. Three other patients have escaped by outrunning attendants. One was captured in an attempt to escape by chasing after him in an automobile. Four of the patients have been reported frequently for fighting with nurses or attendants. Having personally observed two of them I can vouch for the fact that they are able to fight with as much speed and skill as a normal person, if not more. One man of 55 is considered dangerous for this reason, although as a rule he sits most of the day in the same chair on the ward, seldom moving. Another patient is unusual in that he has frequently captured and returned other patients who have attempted to escape.

It seems quite obvious in going over the cases that a strong emotional stimulus is necessary to produce Kinesia Paradoxa. Frequently, this is a desire to get away from the hospital, in particular to go home. Anger plays an important part in its production. A new nurse is almost certain to have trouble with one woman, 31 years old. The older nurses have learned that disturbing her is likely to produce anger. Although the patient is thin and poorly nourished, she can overpower a nurse much younger and apparently stronger.

Emotional instability is more common in the patients that have been committed. Often it is this emotional instability, with a tendency toward combativeness, that leads to their commitment. For this reason, Kinesia Paradoxa will probably not be found as commonly in patients outside of institutions. Unfortunately, I have not been able to observe patients in out-patient clinics closely enough to determine the frequency of Kinesia Paradoxa in them.

Columbus State Hospital.

Symmetrical Cerebral Aneurysms with Rupture and Recovery

Report of a Case

WALTER FREEMAN, M.D., Ph.D.*
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Dr. Freeman, after graduating from the University of Pennsylvania in 1920, took postgraduate work there and abroad. He was the Director of Laboratories for St. Elizabeth's Hospital from 1924 to 1933, and has held the position of Professor of Neurology at George Washington University since 1926. He is the author of "Neuropathology" and has contributed about 100 scientific articles to the periodical literature. He is Secretary of the American Board of Psychiatry and Neurology.

Aneurysms of the Circle of Willis have been recognized for a long time, but they are usually diagnosed *intra vitam* only by inference. The development of cerebral angiography as a diagnostic procedure should bring more of these lesions to the attention of the physician. Ordinarily, these aneurysms give notice of their presence through two main effects upon the patient, namely, rupture or pressure. Sometimes the two are combined.

Most aneurysms are thought to be congenital and sometimes they are symmetrical, owing probably to malformation of the wall of the vessel that permits a saccular pouch to form. These pouches are particularly common at the junction of two different systems of arteries such as in the anterior or posterior communicating arteries.

Rupture of an intracranial aneurysm is by no means necessarily a fatal event and some individuals have survived many years after reasonably certain evidences of rupture. The following case is of interest because it is nearly ten years since the rupture occurred on the right side and about a year and a half

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since it occurred on the left side, but nevertheless, in spite of bilateral oculomotor paralysis, the patient is working regularly.

Case Report

Miss N. G., born 1905, was seen in consultation with Dr. J. F. O'Donnell on March 31, 1931. Some two weeks previously she had been suddenly seized with a violent paroxysm of pain in the back of the head with forcible spasmodic forward flexion of the head. She cried out in pain, vomited, and almost fainted, was dizzy and had to lie down, but tossed about in bed, moaning and complaining bitterly of the atrocious headache. Dr. O'Donnell found no fever; the pulse was slow, the blood pressure normal, and the pupils reacted to light.

During the following days there was gradual clearing up of the symptoms, but on March 30th another attack started with violent headache and a recurrence of pain in the back and limbs. The patient noticed diplopia and there was definite ptosis on the right with weakness on internal rotation. Ophthalmoscopic examination showed blurring of the discs with a suggestion of edema and two diopters of choking, but no hemorrhage or exudates. The right pupil was much enlarged, rather irregular and did not react at all. There was complete oculomotor paralysis on that side. The neck was stiff and painful on movement, with slight retraction and the Kernig sign was strongly positive. Otherwise, the neurologic examination was negative.

Spinal puncture showed 20 mm. of pressure. The fluid was uniformly bloody. Twenty cc.'s was removed, the patient experiencing relief from the backache but not from the headache. There was a faint trace of protein; the Kolmer and Kahn reactions were negative and the colloidal gold curve 001110000. After the red blood cells had settled the overlying fluid was clear yellow.

Treatment consisted in restriction of fluid, purgation, complete rest, hypertonic glucose by vein, sedation, and iodides. Three days later there was another increase in her symptoms with extremely severe headache, slowing of the pulse to 56, and a semi-stuporous condition, but this attack seemed milder than the others and she rapidly recovered.

By May 7th the patient was convalescent, the headaches having largely gone although there was still a little numbness in the arm and leg on the left side and complete oculomotor paralysis. The patient returned to her work on November 1, 1931, and noted that by closing the left eye and exerting a good deal of force she could open the right eye sufficiently to see. The right eye could be rotated beyond the midline slightly and also downward but could not go upward. The pupil was still larger than normal and did not react to light nor in accomodation. There was seldom any headache and only occasionally a little stiffness of the neck.

There was no further trouble until April 13, 1939, when she suffered a peculiar stabbing pain located over the left eye and behind it that was reminiscent of her previous attacks. She had been having headaches for a few days previously but nothing apparently of great significance. Then, as she described it, "This evening about five o'clock while coming home in the car with my boy friend I was struck as though with a baseball bat over the left eye. I cried out, almost went unconscious, broke out in a sweat, was nauseated and could hardly talk." When seen in company with Doctor O'Donnell about 11:00 p.m. she was in terrific pain, scarcely able to speak, the neck was stiff, the left pupil reacted normally and the fundus showed nothing unusual, the ocular movements could be carried out on this side. On the right side the old oculomotor paralysis persisted. Fifty per cent glucose was given intravenously and spinal puncture was postponed. The neck was stiff but otherwise the neurologic examination was negative.

This attack was of short duration and three days later the pain had subsided to a dull ache and the patient was hungry. There was a little nystagmus in looking in both directions. The pulse was rather slow and the pupil was somewhat sluggish on the left. A week later another exacerbation occurred and on examination it was noted that the left eye was drooping and the pupil dilated and fixed, and that the left eye would not turn inward. No spinal puncture was performed at this time. The patient was again placed on dehydration, hypertonic glucose, and sedation.

When seen again on May 6, 1939, the headaches were practically gone, there was stiffness of the neck, she was able to elevate the

right eyelid better than the left, and she could see better out of the left eye. She returned to work about September 15th and continues so at the present time. She still has moderate bilateral ptosis with marked divergent strabismus, but she can raise either eyelid so that she can see out of either eye. The left eye seems to have better vision because the accomodation is not completely paralyzed. She wears a frosted lens over one eye practically all the time but she switches off now and again so as to train each eye. She feels in excellent health and only the peculiarity of her appearance and her modified vision keeps her from functioning at full efficiency. The visual fields are full. There is no scotoma and no enlargement of the blind spot.

Comment

It is presumed that in this case the posterior communicating artery on each side is the seat of a congenital aneurysm. This artery springs from the posterior cerebral linking it to the middle cerebral, thus being theoretically one of the weak points in the Circle of Willis. The artery is located in the immediate neighborhood of the third nerve as it passes forward from the base of the peduncle toward the orbit and it is believed that the nerve became involved in the clot rather than by pressure of the aneurysmal sac itself.

One would hesitate to issue an absolute prognosis in this case, but since patients with ruptured intracranial aneurysms have been reported as surviving for twenty years and more, there seems to be no valid reason why this young woman should not continue in good health for a long time to come. The fact that she has apparently survived three ruptures of an aneurysm on the left side and two ruptures of an aneurysm on the right seems to reveal a certain staying power that stamps her as Irish.

1028 Connecticut Avenue.

Book Reviews

THE MASK OF SANITY. By Hervey Clerckley, B.S., B.A., (Oxon.), M.D. St. Louis: The C. V. Mosby Co., 1941.

This monograph of 294 pages deals with one of the most perplexing paradoxes in present day psychiatry—the psychopathic personality—legally regarded as sane and responsible, but actually abnormal and irresponsible.

Utilizing the "general method of science," Dr. Clerckley, with the aid of several well chosen examples taken from actual life, attempts to crystallize in language form the various personality reactions, feelings, attitudes, etc., experienced by these individuals as they flounder through life and, using this material as a basis for his study, seeks to offer a formulation that will explain their behavior.

The book is divided into four sections. In section I, attention is called to the "vagueness and diversity of psychiatric opinion" concerning the psychopathic personality, the wide prevalence of such disorders is indicated and the legal aspects of sanity and insanity as applied to these persons are discussed.

Section II is devoted to a presentation of the material for study. This is given in the form of case histories of actual life stories of individuals who have been under observation a great many years and most of whom have been known personally by the author for several years.

In section III, the author catalogues the material. He first presents a brief discussion of the opinions of various writers and then attempts to distinguish these personality disorders from other personality types and other mental disorders. In the last chapter of this section entitled "A Clinical Profile" he sets forth a descriptive summary of the outstanding features of these personality types.

In section IV, an interpretation is attempted. The author postulates that with the psychopath as with the psychotic, "we are dealing with a holergasic and not a meregasic disorder," characterized by "a dissociation

(Continued to page 300)

Next Month We Present

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Dean H. Echols, M.D., New Orleans, Louisiana

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H. Beckett Lang, M.D., New York, New York

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Walter L. Bruetsch, M.D., Max A. Bahr, M.D., William J. Dieter, M.D. and Joseph S. Skobba, M.D., Indianapolis, Indiana

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extending through all the range of experience and affecting all the life reactions of the total personality"—a type of dissociation which affects the personality "only in one respect, though affecting it in this one respect throughout the whole range of experience." "To avoid the too broad and misleading term psychopathic personality" he suggests the term "sematic dementia with its connotations of a mind or personality so damaged that experience as a whole cannot be grasped or utilized in its significance or meaning." He maintains that in these individuals "the purposiveness, the significance of all life—striving and of all subjective experience are affected without obvious damage to the outer appearance of the personality." He believes further that these disorders are largely developmental in origin in which psychogenic factors appear to play as great if not greater role than constitutional ones.

The author makes a plea for the recognition of these individuals as ill persons and deplores the practice of exonerating them in the courts on the basis of insanity and then later discharging them from hospitals because of "no nervous of mental disease." As with everyone else, his experience in treating these disorders has been most discouraging and unsatisfactory. It is his opinion that this is due to the "unmodifiable lack of insight, a lack of capacity for a real transference, and an almost complete lack of any sincere desire to get well" possessed by these individuals.

The title is well chosen and the book is written in a pleasing literary style which makes its reading easy and entertaining as well as instructive. While the book leaves the problem of the psychopath still unsolved, it, nevertheless, is recommended to both the medical and legal professions and to all others interested in the welfare of human beings in the hope that it will stimulate more interest in these personalities, the so-called "forgotten man" of psychiatry, and that it will serve to bring about a more rational method of management of these types of cases.

Lewis Barbato, M.D.

Galveston, Texas.

PRINCIPLES OF PSYCHIATRIC NURSING. By Madelene Elliott Ingram, R.N., with a foreword by Ross Mc C. Chapman, M.D. Pp. 428. W. B. Saunders Company, 1940.

I like this inclusive and practical book on psychiatric nursing very much and recommend it as a textbook for use by teachers and for student nurses, whether or not they propose to specialize in psychiatric nursing. The following topics, for example, are self-descriptive, but I may add that they were well formulated and interesting: A Survey of the Nurse as an Individual; Factors Essential in Establishing Satisfactory Rapport; Habit Formation and the Personal Hygiene of the Patient; Safeguarding the Patient's Personal Property; Feeding Problems; Suicide; Escape; Hazards; Accidents; Admission; Transfer; Discharge; Management of Active Patients; Group Management; Occupation and Industry as Therapy; Hydrotherapy; Behavior; Organic Reaction Types; Functional Reaction Types; Miniature Case Studies; Specific Psychiatric Treatments, e.g., shock therapy. It is satisfying to have good advice on Traveling With Patients. I think the student nurse (and, for that matter, the medical student) should gain useful concepts of modern psychiatry from the study of this book of 428 pages. At the end of each chapter appears a Summary Outline, Questions, and a fairly comprehensive Bibliography.

Glenn Myers, M.D.

Los Angeles,California.

EINE SEELE, DIE SICH WIEDERFAND. By C. W. Beers. Benno Schwabe and Company, Verlog, Basel, Switzerland.

The first translation into German of C. W. Beers' autobiography, "A Mind That Found Itself," published in Switzerland, is a welcome event. Psychiatry has developed along different lines in different countries. For instance, the hereditary-eugenic thought at present prevails in some Continental clinics. It is, therefore, a commendable undertaking to acquaint the European public with the American view which looks upon adjustment to life as the central problem and, consequently, considers preventive measures of prime importance. No more forceful, or more moving account to exemplify this tenet could

(Continued to page 302)

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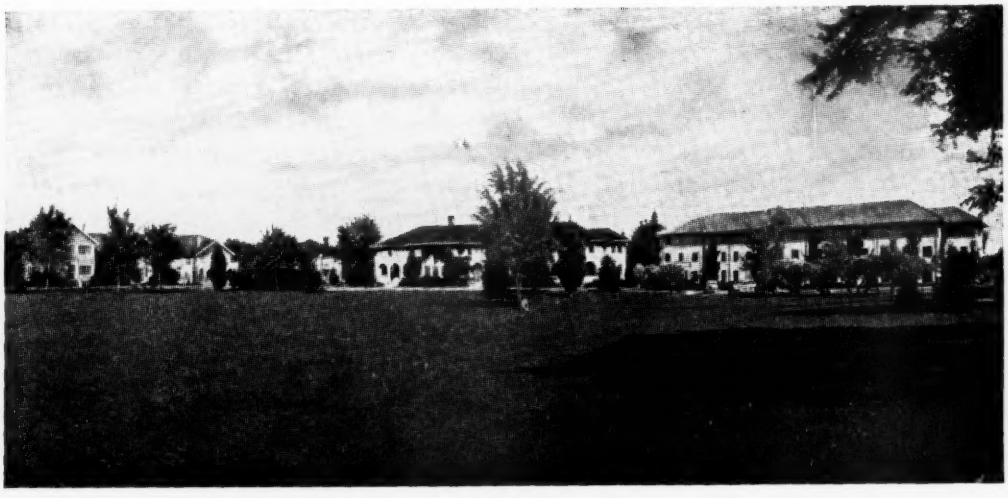

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(Continued from page 300)

be given than the life history of Clifford Beers, the originator of the Mental Hygiene movement, whose story of and about himself has now been made available to the German speaking public.

In the introduction to the translation, Heinrich Meng and André Repond, both distinguished for their respective work, give a short account of the Mental Hygiene movement, and integrate it into the broader aspects of psychiatry as seen from the Continental point of view.

The translation of the work done by Otto Reuter, gives a faithful rendition of the original text. A few too literal transpositions of minor importance bear witness of the difficulties inevitable in such a task. The 25th anniversary edition serves as the original, and the German edition, quite understandingly, is limited to the autobiography proper, without the supplementary account by Beers of the growth of the Mental Hygiene movement in this country and abroad.

May the translation bring fruits commensurate with those this eventful book has already produced!

Stephen Weisz, M.D.

Galveston, Texas.

SCHIZOPHRENIA IN CHILDHOOD. By Charles Bradley, M.D. New York: The MacMillian Company, 1941.

In this little volume of 136 pages, Dr. Bradley has crowded in a wealth of material. He has reviewed all the existing literature on childhood schizophrenia and has organized and presented this material in a clear, orderly manner under various chapter headings dealing with incidence, symptomatology, course, types, etiology, diagnosis, differential diagnosis, prophylaxis and treatment, and prognosis, at the end of which he offers a formulation for a "practical concept of childhood schizophrenia."

The author calls attention to the observation that childhood schizophrenia differs from adult schizophrenia and that this is mainly due to the fact that since children have not developed the capacity to express their mental content verbally the manifestations of a schizophrenic reaction in children occur primarily at a behavior level. He believes that "childhood schizophrenia is best considered as a rare but severe distortion of the personality, peculiarly distinguished by a diffuse retraction of interest from the environment."

He divides the causative factors into primary and secondary categories, defining the primary causes as "those factors which directly influence the child to respond to all sorts of environmental and emotional stresses in typically schizophrenic fashion," which factors "shape the framework of the child's constitutional make-up and reaction pattern"; and the secondary or precipitating causes as "situations and events which evoke or aggravate the schizophrenic response when the pattern has been established." He states further that, for convenience, the symptoms of the psychosis may be regarded as primary or secondary also, the primary symptoms being those which "help to express the schizophrenic reaction pattern itself, particularly those aspects involving withdrawal from reality to a world of fantasy," and the secondary symptoms representing the "attempts of a child to adjust to reality in spite of the difficulties produced by his primary symptoms and frequently represent the patient's reaction to situations from which he cannot completely withdraw."

He mentions that the clinical picture changes from time to time and that as the child approaches puberty and adulthood in the process of which he gradually "acquires adult capacities of expression," the clinical picture gradually assumes the form usually seen in adult life. Dr. Bradley believes that childhood schizophrenia can better be classified into acute and chronic types than into the four types traditionally described in adults. He suggests the more descriptive terms of "periodically agitated type" for the acute type "with a stormy up and down course" and "insidious type" for the chronic, slow developing type. He concludes that laboratory, anatomical and pathological studies have contributed little if anything of value to the understanding of childhood schizophrenia, that prognosis is uniformly poor in these cases, and that response to treatment is most discouraging. The author realizes that many of the concepts presented are still vague and incomplete even though "they have been derived from an extensive personal experience

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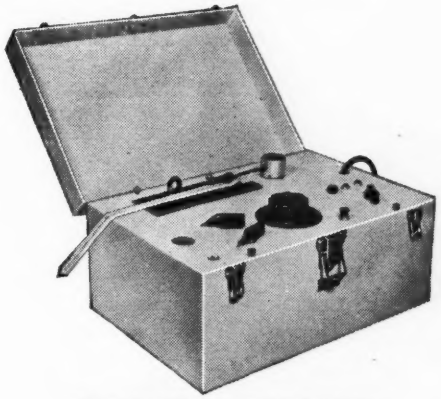

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FRED H. WEBER, M.D.
MARY J. WEBER, M.D.

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and a careful review of the literature" and stresses the "need for further extensive study of individual schizophrenic children over long periods of time with adequate follow-up information as to the outcome in adult life."

The book is well written and easy to read. An extensive bibliography and author's index are included. The Supreme Council, 33 degree Scottish Rite Masons of the Northern Jurisdiction, U. S. A., is to be commended for sponsoring such a work and the author for so ably performing it. The book is recommended to pediatricians, psychiatrists, social workers and all others who are interested in the welfare of children.

Lewis Barbato, M.D.
Galveston, Texas.

MEETING

The Lauderdale County Medical Society were the guests of Dr. M. J. L. Hoye at Hoye's Sanitarium in Meridan, Mississippi on July 17th. Dr. E. S. Sledge of Mobile, Alabama, presented a paper on "Management of Mental Cases in Private Practice." Dr. John S. Hickman of Meridian spoke on "Ways of Commitment and Management of Mental Patients in the Mississippi State Hospital"; Dr. Louis A. Golden of New Orleans spoke on "Recent Views on the Value of Shock Treatment in Mental Diseases, A Review of its Advantages and Limitations"; and Dr. C. Estornelle of Vicksburg spoke on "The Development of Personality." The meeting was well attended and a pleasant time was had by all.

MORALE IN TOTAL WAR—

(Continued from page 275)

morale of the armed forces, who, after all, comprise the first line of contact with the enemy.

This has been called a "total war" since it is one of production, as well as destruction, and since death is imminent for the civilian as well as the soldier. The duties of the soldier and sailor are well known, but now the civilian must contribute more than so-called "moral support." There must be the maximum production of which this country is capable before the civilian portion of the population has fulfilled its obligation. During past wars the feeling of the individual was molded into a single trend of thought by a play upon the collective emotions of the population. Many of the methods used before to create public opinion are outmoded, consequently vigorous steps must be made to attain the spirit essential to victory.

T. H. H.

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